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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/770,089	01/24/2001	Nathan S. Lewis		7432

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EXAMINER	
HANDY, DWAYNE K	
ART UNIT	**PAPER NUMBER**
1743	

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/770,089	LEWIS ET AL.	
	Examiner	Art Unit	
	Dwayne K. Handy	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *232-269* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *232-269* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 232-269 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 232 now contains the limitation "wherein the sensor array is configured to be operatively associated with a detector". It is unclear to the Examiner as to exactly what structure is required for the array to meet this limitation. The Examiner notes Applicant has cited passages in support of this limitation on page 8, lines 14-15 of Remarks (submitted 2/17/2006). These passages merely state that the array is "operatively associated with a detection device". These passages, however, do not state what structural configuration is required of the array in order for the array to meet the limitation of being "configured to be operatively associated with the detector".

Inventorship

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 232-269 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis et al. (5,571,401) in view of Shultz et al. (5,985,356). Lewis teaches a sensor array for detecting analytes in a fluid. The sensor is comprised of at least two sensors having different chemically sensitive resistors which may be conductive or non-conductive on a substrate connected to a detector. The variability in chemical sensitivity is provided by qualitatively or quantitatively varying the compositions of the

conductive and/or non-conductive materials (Abstract). In Tables 2 and 3, Lewis discloses a wide variety of materials which may be used to make their sensor array – including polymers and copolymers. In columns 5 and 6, Lewis discloses methods of making the device including suspension casting, solution casting and dipping in order to place the polymer material onto the sensor substrate. Column 6 (lines 9-28) also contains a passage on optimization of the array that states "the individual elements can be optimized for a particular application by varying their chemical make up and morphologies. The chemical nature of the resistors determine to which analytes they will respond and their ability to distinguish different analytes". Lewis, then, teaches a method of making a sensor array that involves varying the chemical makeup of each sensor to provide a number of different responses. Lewis does not specifically recite the providing of the polymeric materials in an iterative fashion as required by the instant claims. Lewis does teach multiple different polymer materials as well as the use of copolymer materials. Lewis also discloses activation agents (col. 6, lines 29-46

Schultz teaches a method and apparatus for the preparation and use of a substrate. The method is described in general terms in columns 3-4 and again in columns 8-10. The method includes depositing at least a first and second material on to at least two different regions of a substrate and reacting them. The process is repeated to form a vast array of compounds at predefined locations on the substrate (col. 3, lines 35-48). Schultz discloses the use of a variety of substrates in column 11, lines 42-65 – including substrates having dimples or wells. In column 13, lines 24-67, Schultz again discloses dimple use and further teaches the use of barrier material

between reaction regions. Schultz discloses delivery systems for delivering materials to the substrate in column 10. These systems include sputtering and spraying systems as well as CVD systems.

In the Examples, Schultz discloses a method of combining two compounds in an iterative fashion to form an array of compounds having different properties. The Example having the most relevance to the instant claims is Example B (columns 33 and 34). In Example B, an array of 16 different organic polymers is formed on a 3 cm by 3 cm glass substrate. The organic polymers are formed from styrene and acrylonitrile monomers in toluene solvent that are delivered to the substrate and then reacted by addition of an initiator compound. The concentrations of the styrene and acrylonitrile compounds are varied in an iterative fashion when forming each of the 16 regions (Table III). The Examiner believes this method recited in Example B is relevant to the claimed method of independent claim 1. The method includes providing a first solution of a first compound (styrene) at a concentration "x" and a second solution of a second compound (acrylonitrile) at a concentration "y" on a first region, and also providing a first solution of a first compound (styrene) at a concentration "x+a" and a second solution of a second compound (acrylonitrile) at a concentration "y+b" on a second region. In this Example, a = (-1.5) and b is equal to (+1.5). In claim 261, applicant has claimed a method where two compounds are placed into four regions instead of two. The Examiner directs applicant to Figures 3A-3F which shows at least two compounds being placed onto more than two regions of the substrate to form the reacted compound array. This is described in columns 18 and 19.

It would have been obvious to one of ordinary skill in the art to combine the iterative synthesis steps from Schultz with the method of Lewis. Lewis teaches the use of a wide variety of polymeric compounds for use in their sensor. Schultz discloses a method of coating a substrate with polymers in an iterative fashion and then reacting them in order to create a vast array of compounds having different properties. One would use the steps from Schultz to create a sensor array having a variety of individual sensors with different chemical properties. This would increase the sensitivity of the sensor array due. One would use the substrate from Schultz having barrier materials in order to keep the synthesis materials separate. As for the iteration variables 235-237, the method includes the step of increasing the concentration of one compound a specified amount while decreasing the concentration of the second compound by a specified amount. In comparison to the claim, the Examiner considers this "specified amount" or "iterative variables" to yield and "a" equal to (-1.5) and "b" equal to (1.5). Schultz, then, does not teach steps in which "a" and "b" are equal, both "a" and "b" negative or both positive. It would have been obvious to one of ordinary skill in the art to use values of "a" and "b" that are equal or both positive/negative. One would change the iterative variables in order to create a greater number of compounds in the array.

Response to Arguments

6. Applicant's arguments with respect to claims 232-269 have been considered but are moot in view of the new ground(s) of rejection. Applicant has amended the claims

to include a detector element. This feature is not taught in Schultz. The Examiner believes this has been addressed by the addition of the Lewis reference.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwayne K. Handy whose telephone number is (571)-272-1259. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DKH
May 1, 2006

Jill Warden
Supervisory Patent Examiner
Technology Center 1700